coll. Brit. Mus., presented by the Raffles Museum and Library, to whose energetic Director, Major J. C. Moulton, O.B.E., T.D., B.A., M.Sc., I have dedicated the species.

20. *Plutodes warreni*, sp. n.

*Plutodes costatus*, Warr. Proc. Zool. Soc. Lond. 1893, p. 388 (nec Butl.).

Smaller than *costatus*, Butl. (= *triangularis*, Warr.), antennal pectinations rather less long, colouring slightly paler, antemedian triangle larger, with antemedian line from its *distal* side, postmedian triangle normally narrower than in *costatus*, variable, very occasionally continued narrowly to join tornal patch; apical patch of hind wing separated from ground-colour by a "manifestly sinuous" (or indented) dark line; underside more weakly marked, the oblique dark central line of fore wing almost obsolete.

N.W. India: Sabathu, type ♂ and 4 ♀ ♀ in coll. Brit. Mus., 1 ♂ in coll. Tring Mus.

To Mr. Warren belongs the credit of discovering that there were two species mixed under the name of *costatus*, Butl., but he unfortunately overlooked that the true *costatus* (Darjiling) was the same form which he so carefully differentiated as *triangularis* (*loc. cit. supra*, Sikkim and Assam), and that it was the N.W. Himalayan which really required a name.

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## XXXVI.—*Notes on* Arctonyx.

By Einar Lönnberg, F.M.Z.S. &c.

*Arctonyx leucolæmus milne-edwardsii*, subsp. n.

In his well-known work 'Recherches des Mammifères' (1868–1874) A. Milne-Edwards mentions and shortly describes (p. 340) a specimen of *Arctonyx*, which he had received from southern Shensi among other collections from "M. l'abbé David." One of the most important characteristics of the skull of this animal was that it was provided with a small premolar more than other specimens of *Arctonyx*.

The R. Nat. Hist. Museum in Stockholm has recently received a specimen of *Arctonyx*, which has been collected 15. x. 1921 in the Minshan Mountains in southern Kansu by

Mr. D. Sjölander. The skull of this one is provided with a small $p^1$ and a similar $p_1$ on both sides, thus agreeing with Milne-Edwards's specimen. The latter is somewhat larger than our specimen, which, however, may be due to the fact that the specimen from Minshan is a female. The absolute identity is not proved, but the close relationship is apparent, and, as this *Arctonyx* is without name, I take the liberty of dedicating it to the author quoted. The specimen from Kansu, which is to be regarded as the type, may be described as follows:—

General colour much darker even than that of *A. l. obscurus* from Eastern Thibet—in fact, black above, only grizzled, with brownish-white tips to the hairs on a patch on the upper neck and on the hind-quarters, the white underfur being quite covered by the entirely black hairs. The creamy-white fronto-nasal band practically ceases a little behind the eyes, but is to some extent continued by some whitish-tipped hairs which are scattered mesially to the above-mentioned grizzled patch on the upper neck. The black band through the eye extends forwards to the edge of the upper lip, which is brownish black to the angle of the mouth, and there continuous with the black of the chin and the interramial space. The light mark below the eye consists of a horizontal brownish-white streak, more brownish in its posterior part. The ear-rim is rather broadly pure white. The light throat-patch is creamy white, thus lighter or more whitish than the same of *A. obscurus*, according to Milne-Edwards's figure of the latter. The lower parts behind the throat are black, with a sparse brownish-grey underfur on the belly. Legs and feet black, claws pale horn-coloured. Tail brownish white basally, quite white towards the tip.

Head and body 68, tail 14 cm.

Skull: condylo-basal length 123 mm.; basal length 112; greatest breadth 70; interorbital breadth 27; palate-length to one of the posterior corners 90·5, mesially 79; breadth of brain-case 47·6; mastoid breadth 69; greatest diameter of $m^1$ 13·8.

Thomas, in 1911, described a new subspecies—*Arctonyx leucolæmus orestes*—from Tsin-ling Mountains, S.W. Shensi. This is evidently very different from the Kansu race as well with regard to the colour-pattern as with regard to size. In opposition to the specimen from Minshan, S. Kansu, which appears to be one of the darkest, *A. l. orestes* is very light-coloured, with white upper lip, white interramial space, etc., and with the back "more broadly washed with whitish than

appears to be the case in *leucolæmus*." The type of *orestes* being a "young adult" female, its cranial measurements are directly comparable with those of our specimen from Kansu. The latter prove, however, to be very much smaller in every dimension. Especially noteworthy is the difference in size of $m^1$, the greatest diameter of which is 16 mm. in *orestes*, but only 13·8 mm. in the present specimen from Kansu. This, together with the great differences in colour, convinces me that these two forms of *Arctonyx* are quite distinct from each other.

Quite recently Jacobi *, when describing the mammals of Stötzner's expedition to China, has pointed out that the coloration etc. of *A. obscurus* is subjected to considerable variation, and he has also had a specimen, which he refers to this species, which has the whole back black. It is rather difficult to express any opinion in this case, as the author

Fig. 1. Fig. 2.

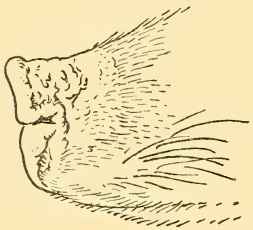

Fig. 1.—End of snout of *Arctonyx*, lateral view.
Fig. 2.—Rhinarial disk of *Arctonyx*.

quoted has not recorded any measurements of skulls and teeth etc. It might be possible that, when more material has been examined, the present specimen may prove only to represent a variety of *A. obscurus* ; but, on the other hand, the development of local races in a country with such natural conditions as western China is almost to be expected.

As the specimen from Kansu is in a very good state of preservation, I am able to add some remarks about structural details, which may be of more general interest than the description of a subspecies.

Blanford's description of the snout of *Arctonyx*—"long, mobile, naked towards the end, and truncated, the terminal

* Abh. u. Ber. d. Mus. f. Tierk. u. Völkerk., Dresden, 1922, Bd. xvi. Nr. 1.

disk containing the nostrils being much like that of a pig"—appears to be very suitable for this species as well. This organ is thus rather different from that of *Meles*, as also is proved by the accompanying figures (figs. 1 and 2), which have been drawn from the present specimen*. The upper side of the snout behind the rim of the disk is more broadly naked than in *Meles*. The upper lip below the disk is, although sharply defined from the same, almost naked, only beset with a few scattered short and coarse hairs.

The facial vibrissæ appear to be rather reduced in number. I cannot see but two above the eye, and on the cheeks only one corresponding to the lower genal tuft.

Fig. 3.

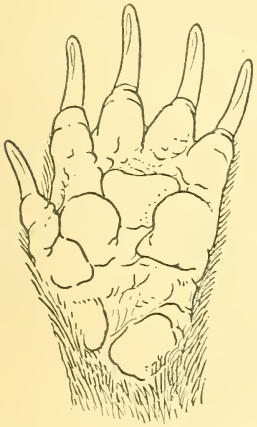

Fig. 4.

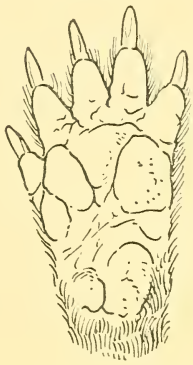

Fig. 3.—Left fore foot of *Arctonyx*, showing arrangement of pads.
Fig. 4.—Left hind foot of *Arctonyx*, „ „ „

The fore feet of *Arctonyx* (fig. 3) are, of course, fossorial, with big claws, but their structure differs evidently from that of the genera *Meles*, *Taxidea*, and *Mellivora*, as those are described by Pocock (1920). The digits are connected about to the middle of the digital pads. The pollex is set further up the foot than the other digits, which are almost on a level with each other, but the former is as closely connected to the side of the foot as the others *inter se*. The digital pads are well defined, and the space between them and the plantar

* The median groove at the lower side of the rhinarial disk *might* be an artefact produced by the drying of the skin.

pads is naked. The latter are irregular in shape, but quite well defined all round, and thus exhibiting a condition different from that in *Meles* and other genera of badgers (*vide* Pocock). The plantar pad behind the pollex is the smallest, and the one on the outer side the largest. Behind the plantar pads follow after an interspace two carpal pads (as in *Meles*, but unlike *Taxidea*), the outer of which is much the larger, and also more pronounced. The whole plantar surface is naked; thus the characteristic tuft of hair found in the interspace between the plantar and carpal pads of *Meles* is missing *.

The hind foot (fig. 4) is in every dimension smaller than the fore foot, and has also smaller claws, although they appear to be comparatively rather larger and more fossorial in shape than those of *Meles*. Digits 3 and 4 sit on a level, then follows the second, while the fifth is somewhat behind those mentioned, and the hallux still more so. Unlike the condition in *Meles*, the pads of digits 3 and 4 are fully separated, even if the toes themselves sit a little closer together than the others. The space between the digital and the plantar pads is naked, and the latter are four in number, quite well defined, unlike in *Meles*, etc. The plantar pad on the hallucal side is the smallest, and that on the opposite side the largest. Behind these pads is a naked space, and then two metacarpal pads are found which are quite well defined, but the one on the outer side is much the larger. With regard to the metacarpal pads as well *Arctonyx* thus differs from *Meles*, and still more so from *Taxidea* and *Mellivora*, which two latter genera, as Pocock has shown, only have a single metacarpal pad.

The author just quoted shortly mentions (P. Z. S. 1920, i. p. 426) unpublished sketches of the feet of *Arctonyx*, which have been drawn by Hodgson, and which are said to "resemble the feet of *Meles* in general features." The description above may prove that the differences are rather important, and that *Arctonyx*, as well by the structure of its feet as with regard to its skull, is very well defined from *Meles* and the other genera mentioned above. The structure of the feet of *Arctonyx* may be considered to be less specialized, as its pads are hardly ever fused, but retain a more primitive condition. In this it resembles to some degree *Helictis*.

* I have stated the presence of this tuft also on the fore feet of *M. leptorhynchus* from China, so that it is certainly a generic character.